



ATW

[10191/3549]

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BOARD OF PATENT APPEALS AND INTERFERENCES**

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In re Application of: : Examiner: S. Heinrich  
CALLIES et al. :  
:   
For: DEVICE FOR LASER DRILLING :  
: Art Unit: 1725  
Filed: March 10, 2004 :  
: Confirmation No.: 5929  
Serial No.: 10/798,116 :  
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Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**APPEAL BRIEF TRANSMITTAL**

SIR:

In response to the Notice of Non-Compliant Appeal Brief of October 13, 2006, please find herewith an Appeal Brief pursuant to 37 C.F.R. § 1.192(a).

Please charge any fee that may be required to Deposit Account No. 11-0600. A duplicate of this Transmittal is enclosed.

Respectfully submitted,

*Res: Len (Reg. No. 41,172)*

Dated: 11/13/06

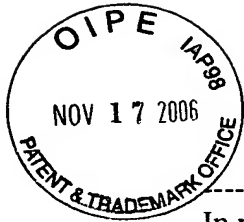
By: *[Signature]*  
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KENYON & KENYON LLP



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**APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37**

SIR:

On September 29, 2005, Appellants submitted a Notice of Appeal from the final rejection of claims 9, 11, and 13-16 contained in the Final Office Action issued by the U.S. Patent and Trademark Office (the "PTO") on April 12, 2005, in the above-identified patent application. An Appeal Brief was submitted on January 3, 2006. The following Amended Appeal Brief is being submitted in response to a Notification of Non-Compliance mailed October 13, 2006.

In accordance with 37 C.F.R. § 41.37, this brief is submitted in support of the appeal of the final rejection of claims 9, 11, and 13-16. For at least the reasons set forth below, the final rejection of claims 9, 11, and 13-16 should be reversed.

**1. REAL PARTY IN INTEREST**

The real party in interest in the present appeal is Robert Bosch GmbH, Postfach 30 02 20, 70442 Stuttgart, Federal Republic of Germany. Bosch is the assignee of the entire right, title, and interest in the present application.

2. **RELATED APPEALS AND INTERFERENCES**

There are no interferences or other appeals related to the present application.

3. **STATUS OF CLAIMS**

Claims 1-8, 10, 12 are currently cancelled. Claims 9, 11, 13-16 are currently pending. Claims 9, 11, 13-16 currently stand rejected. Appellants appeal the rejection of claims 9, 11, 13-16.

4. **STATUS OF AMENDMENTS**

There are currently no amendments pending.

5. **SUMMARY OF THE CLAIMED SUBJECT MATTER**

Independent claim 9 recites a device for laser drilling and laser erosion that includes a laser (e.g. laser 1a) for generating a laser beam (e.g. laser beam 1) acting upon a point of action on a workpiece (e.g. workpiece 2). See also, page 4, lines 16-18. (Note : all reference elements noted herein relate to and are visible in both Figs. 1 and 2).

The laser drilling and laser erosion device further includes a device for generating an electric field including an electrode (e.g. electrode 3) and a current-voltage source (e.g. source 4). See also, page 4, lines 17-21. The electrode (e.g. electrode 3) is situated at a distance from the point of action where the laser beam (e.g. laser beam 1a) acts upon the workpiece (e.g. workpiece 2). The current-voltage source (e.g. source 4) is interconnected between the electrically conductive workpiece (e.g. workpiece 2) and the electrode (e.g. electrode 3) such that the electric field (e.g. electric field 5) is applied between the workpiece (e.g. workpiece 2) and the electrode (e.g. electrode 3). See also, page 4, lines 22-24.

Additionally, the workpiece (e.g. workpiece 2) and the electrode (e.g. electrode 3) are interconnected in such a way that the workpiece (e.g. workpiece 2) is positively charged (+) and the electrode (e.g. electrode 3) is negatively charged (-). See also, page 4, lines 21-22.

6. **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 9, 11, and 14-16 are rejected under 35 U.S.C. §102(b) as being anticipated by Japanese Patent No. JP708155670A (hereinafter referred to as “JP ‘670”).

Claims 9, 11, and 14-16 are rejected under 35 U.S.C. §102(b) as being anticipated by Japanese Patent No. JP 06000684A (hereinafter referred to as “JP ‘684”).

Claim 13 is rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. JP ‘670 in view of Japanese Patent No. JP7266073A (hereinafter referred to as “JP ‘073”).

7. **ARGUMENTS**

The rejection of claims 9, 11, 14-16 is improper

Claims 9, 11, 14-16 stand rejected under 35 U.S.C. §102(b) as being anticipated by both JP ‘670A and JP ‘684. This rejection is improper because both JP ‘670 and JP ‘684 fail to identically disclose every limitation of claims 9, 11 and 14-16.

Claim 9 recites a device for laser drilling and laser erosion that includes a laser for generating a laser beam and a device for generating an electric field. The electric field generating device includes an electrode and a current-voltage source. Through the positioning of the electrode a distance from the point of action on the workpiece and the current-voltage source being interconnected between an electrically conductive workpiece and the electrode, an electric field is applied therebetween. Additionally, the workpiece and electrode are interconnected such that the workpiece is positively charged (+) and the electrode is negatively charged (-). Claims 11 and 14-16 depend from and recite further patentable subject matter in view of claim 9.

JP ‘670 discloses a device providing the laser drilling or laser removal from a workpiece. According to the Abstract and Figures 1 and 3, two electrodes are connected to each other, using a current-voltage source to generate an electric field. These two electrodes include a base electrode 2, also referred to as a substrate electrode 2, and an opposite electrode 3. Explicitly disclosed in JP ‘670, workpiece W itself is NOT electrically connected to the current-voltage source, but rather is merely situated on the substrate electrode 2. (See, for example, para 1 stating “applying electric field near the workpiece” and para. 18 stating “Workpiece W is laid on the substrate electrode 2”).

In support of and for upholding of this rejection, the Examiner states that the device of JP ‘670 “can be arranged with an electric field such that the workpiece is either charged positive or negative.” (Final Office Action, page 3, para. 3; Advisory Action, Cont. Sheet). Appellants respectfully disagree with the Examiner’s assertion that JP ‘670 anticipates the claimed invention because JP ‘670 does not disclose the current-voltage source being interconnected between an electrically conductive workpiece and the electrode. Rather, JP ‘670 explicitly discloses the current-voltage source being

interconnected between two electrodes (2 and 3, not W), which is wholly inconsistent with the claimed invention.

JP '684 discloses a similar invention to JP '670, providing the application of voltage between electrode (7) and mask electrode (6) to generate an electric field relative to the surface of a PGA. Same as with JP '670, Appellants submit the Examiner has asserted an improper rejection because JP '684 does not disclose the current-voltage source being interconnected between an electrically conductive workpiece and the electrode. Rather, JP '684 explicitly discloses the current-voltage source being interconnected between two electrodes (6 and 7, not PGA), which is wholly inconsistent with the claimed invention.

In both JP '670 and JP '684, using the workpiece itself as an electrode is neither discussed nor indicated. For example, in JP '684 this may not be discussed or indicated because the PGA housing is typically made of a non-conducting material.

Through the interconnection of the current voltage source to the workpiece and the electrode, the claimed invention realizes technical advantages. For example, by refraining from the use of a substrate electrode, the claimed device offers a technically simple and cost-effective construction. The present invention avoids potential problems with bad mechanical or electrical contacts between the workpiece and electrode by having the workpiece itself being directly connected to the current voltage source and the workpiece consequently is used as the electrode. If the electrical contacting between the substrate electrode and the workpiece is not fully ensured, for example, by contamination on the substrate electrode, then the workpiece itself is not electrically charged, as required by claim 9. As a result, the acceleration "a" of the ions in the electrical fields is reduced, since then, as the distance "d" between the electrodes, the distance between the substrate electrode and the counter-electrode is to be considered, and not the shorter distance between the surface of the workpiece and the counter-electrode (e.g., see the formula in the table in page 5 of the specification.)

Even if the electrical contacting between the substrate electrode and the workpiece were fully ensured, bringing into contact the workpiece with the substrate electrode corresponds physically to an interference in the original electrical field between the two electrodes, since the electrical field is changed by the workpiece. Therefore, it must be assumed that the electrical field changes even at the effective location on the workpiece, and thus makes more difficult a controlled processing of the workpiece.

Therefore, Appellants submit the rejection of claims 9, 11 and 14-16 under 35 U.S.C. §102(b) as being anticipated by either JP ‘670 or JP ‘684 is improper because both JP ‘670 and JP ‘684 fail to identically disclose every limitation as claimed.

The rejection of claim 13 is improper

Claim 13 stands rejected under 35 U.S.C. §103(a) as being unpatentable over JP ‘670 in view JP ‘073. This rejection is improper because the combination of JP ‘670 and JP ‘073 fails to teach or suggest every limitation of claim 13.

Claim 13 recites the device including of claim 9, wherein a magnetic field is applied in an area of the point of action of the workpiece.

In support of this rejection, the Examiner asserts JP ‘073 as teaching “well known machining using the magnetic field applied to the point of action.” (Final Office Action, page 3, lines 8-9 and 15-16) JP ‘073 is not asserted to overcome the above-noted deficiency of JP ‘670, specifically failing to disclose the current-voltage source being interconnected between an electrically conductive workpiece and the electrode. As JP ‘073 is only asserted regarding its disclosure of the application of the magnetic field, Appellants respectfully resubmit the above-offered position regarding the deficiencies of the disclosure of JP ‘670 as applied to the claimed invention. As such, the combination of JP ‘670 and JP ‘073 fails to teach or suggest every limitation of claim 13.

Therefore, Appellants submit the rejection of claim 13 under 35 U.S.C. §103(a) is improper because JP ‘670 fails to disclose, teach or suggest the current-voltage source being interconnected between an electrically conductive workpiece and an electrode. Moreover, the combination of JP ‘670 and JP ‘073 fails to overcome this deficiency as JP ‘073 is asserted by the Examiner solely for teaching of the application of a magnetic field near the point of action.

8. CONCLUSION

For at least the reasons indicated above, Appellants respectfully submit that the art of record does not teach or suggest Appellants' invention as recited in the claims of the above-identified application. Accordingly, it is respectfully submitted that the invention recited in the claims of the present application is new, non-obvious and useful. Reversal of the Examiner's rejections and objections of the claims is therefore respectfully requested.

Respectfully submitted,

Dated: 11/13/06

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## CLAIMS APPENDIX

9. (Previously Presented) A device for laser drilling and laser erosion comprising: a laser for generating a laser beam acting upon a point of action on a workpiece; a device for generating an electric field in an area of the point of action, wherein the device for generating the electric field includes an electrode and a current-voltage source, the electrode being situated at a distance from the point of action, the current-voltage source being interconnected between an electrically conductive workpiece and the electrode in such a way that the electric field is applied between the workpiece and the electrode, and wherein the workpiece and the electrode are interconnected in such a way that the workpiece is positively charged and the electrode is negatively charged.
11. (Previously Presented) The device according to claim 9, wherein the current-voltage source is a direct current-voltage source.
13. (Previously Presented) The device according to claim 9, wherein a magnetic field is applied in an area of the point of action on the workpiece.
14. (Previously Presented) The device according to claim 9, further comprising an electric measuring device for measuring a current flowing between the workpiece and the electrode.
15. (Previously Presented) The device according to claim 9, wherein the current-voltage source generates a high-frequency alternating voltage, and further comprising a measuring device for measuring a capacitive resistance between the workpiece and the electrode.
16. (Previously Presented) The device according to claim 9, wherein the electrode has a one-piece design and has at least one opening through which the laser beam passes without obstruction.

## CLAIMS APPENDIX 1



## **EVIDENCE APPENDIX**

Appellants submit no additional evidence.

## **RELATED PROCEEDINGS APPENDIX**

There are no related proceedings.